

AMENDMENTS

IN THE CLAIMS:

1. (Currently Amended) A catalyst comprising at least one [[sulfonated,]] sulfone cross-linked ion exchange resin [[catalyst]] having improved resistance to deformation under pressure, the catalyst further comprising polymerized monomer units of (a) from 0.1 to 10 percent by weight of one or more polyvinylaromatic monomers and (b) from 90 to 99.9 percent by weight of one or more monounsaturated vinylaromatic monomers; wherein the catalyst contains 0.1 to 1.0 millimole sulfone groups per gram dry catalyst [[, and has an acid capacity of 4.0 to 6.0 millimole sulfonic acid groups per gram dry catalyst]].
2. (Currently Amended) The [[cross-linked ion exchange resin]] catalyst of claim 1, wherein the catalyst is in the form of spherical beads, has an acid capacity of 4.0 to 6.0 millimole sulfonic acid groups per gram dry catalyst and is capable of catalyzing the formation of at least one bisphenol upon contacting phenols and aldehydes or ketones.
3. (Currently Amended) The [[cross-linked ion exchange resin]] catalyst of claim 2, wherein the catalyst resin beads are prepared from a jetted, suspension polymerized polystyrene/divinylbenzene copolymer [[having from 0.1 to 1.0 millimole of sulfone groups per gram of dry catalyst]].
4. (Currently Amended) The catalyst of claim 1, wherein [[A]] the catalyst is present in a reactor used for producing at least one bisphenol and is present in an amount from about 1 % to 40 % by weight, based on total weight of reactants, which comprises [[contacting]] one or more phenols

and one or more aldehydes or one or more ketones [[with a sulfonated, cross-linked ion exchange resin functionalized with strongly acid cation-exchange groups]].

PLEASE CANCEL CLAIMS 5-20.

- 21.(New) The catalyst of claim 1, wherein the catalyst further comprises 1 % to 35 % by weight of sulfonic acid groups containing an ionically attached thiol promoter.
- 22.(New) The catalyst of claim 1, wherein the catalyst catalyzes the condensation reaction between phenol and acetone, yielding bisphenol-A.
- 23.(New) The catalyst of claim 1, wherein the one or more polyvinylaromatic monomers is selected from the group consisting of: divinyl benzene, divinyl toluene, trivinyl benzene, divinyl chloro benzene, diallyl phthalate, divinyl naphthalene, divinyl xylene, divinyl ethyl benzene, trivinyl naphthalene, polyvinyl anthracenes, aliphatic cross-linking monomers, aliphatic divinylacrylates, aliphatic polyvinylacrylates, aliphatic polyvinyl methacrylates, trimethylolpropane trimethacrylate, ethylene glycol dimethacrylate, ethylene glycol diacrylate, neopentyl glycol dimethacrylate, pentaerythritol tetramethacrylates, pentaerythritol trimethacrylates, trivinyl cyclohexane and combinations thereof.
- 24.(New) The catalyst of claim 1, wherein the catalyst comprises 0.6 mmol of aromatic rings having two sulfonic acid groups per gram of dry catalyst and the catalyst comprises 0.2 mmol of sulfone bridging groups per gram of dry catalyst.
- 25.(New) The catalyst of claim 1, wherein the one or more monounsaturated vinylaromatic monomers are selected from the group consisting of styrene, substituted styrenes, α -methyl styrene, vinyltoluene, ethyl vinyl benzene, vinyl naphthalene and combinations thereof.
- 26.(New) A catalyst comprising at least one sulfone cross-linked ion exchange resin having improved resistance to deformation under

pressure, the catalyst further comprising a copolymer having between 1.0 and 6.0% by weight of divinylbenzene cross-linking, wherein the catalyst is sulfonated to a dry weight acid capacity of greater than 4.0 mmol/g and having between 0.1 to 1.0 mmol/g of sulfone bridging groups per gram dry catalyst.

- 27.(New) The catalyst of claim 26, wherein the catalyst comprises between 1 and 4% by weight of divinylbenzene crosslinking, wherein the catalyst is sulfonated to a dry weight acid capacity of greater than 5.1 mmol/g.
- 28.(New) The catalyst of claim 26, wherein the catalyst resin is in the form of spherical beads that are prepared from a jetted, suspension polymerized polystyrene/divinylbenzene copolymer.
- 29.(New) The catalyst of claim 26, wherein the catalyst is present in a reactor used for producing at least one bisphenol and is present in an amount from about 1 % to 40 % by weight, based on total weight of reactants, which comprises one or more phenols and one or more aldehydes or ketones with a sulfonated, cross-linked ion exchange resin functionalized with strongly acid cation-exchange groups.
- 30.(New) The catalyst of claim 26, wherein the catalyst further comprises 1 % to 35 % by weight of sulfonic acid groups containing an ionically attached thiol promoter.
- 31.(New) The catalyst of claim 26, wherein the catalyst catalyzes the condensation reaction between phenol and acetone, yielding bisphenol-A.
- 32.(New) The catalyst of claim 26, wherein the one or more polyvinylaromatic monomers is selected from the group consisting of: divinyl benzene, divinyl toluene, trivinyl benzene, divinyl chloro benzene, diallyl phthalate, divinyl naphthalene, divinyl xylene, divinyl ethyl benzene, trivinyl naphthalene, polyvinyl anthracenes, aliphatic cross-linking monomers, aliphatic divinylacrylates, aliphatic polyvinylacrylates, aliphatic polyvinyl methacrylates, trimethylolpropane trimethacrylate, ethylene glycol dimethacrylate, ethylene glycol diacrylate, neopentyl

glycol dimethacrylate, pentaerythritol tetramethacrylates, pentaerythritol trimethacrylates, trivinyl cyclohexane and combinations thereof.

- 33.(New) The catalyst of claim 26, wherein the catalyst comprises 0.6 mmol of aromatic rings having two sulfonic acid groups per gram of dry catalyst and the catalyst comprises 0.2 mmol of sulfone bridging groups per gram of dry catalyst.
- 34.(New) A plurality of catalysts, each catalyst comprising at least one sulfone cross-linked ion exchange resin having improved resistance to deformation under pressure, the catalyst further comprising polymerized monomer units of (a) from 0.1 to 10 percent by weight of one or more polyvinylaromatic monomers and (b) from 90 to 99.9 percent by weight of one or more monounsaturated vinylaromatic monomers; wherein the catalyst contains 0.1 to 1.0 millimole sulfone groups per gram dry catalyst, and wherein each catalyst comprises different levels of polyvinylaromatic cross-linking.
- 35.(New) The catalysts of claim 34, wherein each catalyst further comprises different levels of sulfone bridged cross-linking.
- 36.(New) The catalysts of claim 34, wherein each catalyst is in the form of spherical beads that are prepared from a jetted, suspension polymerized copolymer.